INTEGRATED DISPOSAL FACILITY
CHAPTER 3.0
WASTE ANALYSIS PLAN
CHANGE CONTROL LOG

Change Control Logs ensure that changes to this unit are performed in a methodical, controlled, coordinated, and transparent manner. Each unit addendum will have its own change control log with a modification history table. The "**Modification Number**" represents Ecology's method for tracking the different versions of the permit. This log will serve as an up to date record of modifications and version history of the unit.

Modification History Table

Modification Date	Modification Number
6/30/2013	

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CHAPTER 3.0
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WASTE ANALYSIS [C]

This chapter provides information on the chemical, biological, and physical characteristics of the waste treated for disposal. The information includes descriptions required by Washington Administrative Code (WAC) 173-303-300(5) contained in the Waste Analysis Plan for the Integrated Disposal Facility (IDF).

CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS [C-1]

The primary mission of the IDF will be to dispose of vitrified waste generated on the Hanford Site. This includes vitrified low-activity waste (LAW) from the River Protection Project-Waste Treatment Plant (RPP-WTP) and Demonstration Bulk Vitrification System (DBVS), and low-level radioactive waste. Additionally, waste generated through IDF operations will be disposed of in IDF. Waste to be disposed of in IDF is assigned dangerous waste numbers found in Chapter 1.0.

WASTE ANALYSIS PLAN [C-2]

The Waste Analysis Plan for the IDF summarizes waste acceptance processes and contains the following information: unit description, confirmation process, selection of waste analysis parameters, selection of sampling procedures, selection of a laboratory, laboratory testing, and analytical methods, selection of waste re-evaluation frequencies, special procedural requirements, and recordkeeping requirements.

~~GLOSSARY~~TERMS

AEA	*Atomic Energy Act of 1954*
BVW	Bulk Vitrification Waste
CAP	Corrective Action Plan
CFR	Code of Federal Regulations
COLIWASA	Composite Liquid Waste Sampler
°C	Degree Celsius
DOE-ORP	U.S. Department of Energy, Office of River Protection
DOE-RL	U.S. Department of Energy, Richland Operations Office
DBVS	Demonstration Bulk Vitrification System
DST	Double-Shell Tank
Ecology	Washington State Department of Ecology
IDF	Integrated Disposal Facility
ILAW	Immobilized Low-Activity Waste
LDR	Land Disposal Restriction
NDE	Nondestructive Examination
PPE	Personal Protective Equipment
QA	Quality Assurance
QC	Quality Control
RCRA	*Resource Conservation and Recovery Act of 1976*
RCW	Revised Code of Washington
RPP-WTP	River Protection Project-Waste Treatment Plant
SWITS	Solid Waste Information Tracking System
TRU	Transuranic
TSCA	*Toxic Substances Control Act of 1976*
TSD	Treatment, Storage, and/or Disposal
WAC	Washington Administrative Code
WAP	Waste Analysis Plan

1 **METRIC CONVERSION CHART**

Into Metric Units			Out of Metric Units		
If you know	**Multiply by**	**To get**	**If you know**	**Multiply by**	**To get**
Length			**Length**		
inches	25.40	millimeters	millimeters	0.03937	inches
inches	2.54	centimeters	centimeters	0.393701	inches
feet	0.3048	meters	meters	3.28084	feet
yards	0.9144	meters	meters	1.0936	yards
miles (statute)	1.60934	kilometers	kilometers	0.62137	miles (statute)
Area			**Area**		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.09290304	square meters	square meters	10.7639	square feet
square yards	0.8361274	square meters	square meters	1.19599	square yards
square miles	2.59	square kilometers	square kilometers	0.386102	square miles
acres	0.404687	hectares	hectares	2.47104	acres
Mass (weight)			**Mass (weight)**		
ounces (avoir)	28.34952	grams	grams	0.035274	ounces (avoir)
pounds	0.45359237	kilograms	kilograms	2.204623	pounds (avoir)
tons (short)	0.9071847	tons (metric)	Tons (metric)	1.1023	tons (short)
Volume			**Volume**		
ounces (U.S., liquid)	29.57353	milliliters	milliliters	0.033814	ounces (U.S., liquid)
quarts (U.S., liquid)	0.9463529	liters	liters	1.0567	quarts (U.S., liquid)
gallons (U.S., liquid)	3.7854	liters	liters	0.26417	gallons (U.S., liquid)
cubic feet	0.02831685	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.7645549	cubic meters	cubic meters	1.308	cubic yards
Temperature			**Temperature**		
Fahrenheit	subtract 32 then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit

Into Metric Units			Out of Metric Units		
If you know	**Multiply by**	**To get**	**If you know**	**Multiply by**	**To get**
Energy			**Energy**		
kilowatt hour	3,412	British thermal unit	British thermal unit	0.000293	kilowatt hour
kilowatt	0.94782	British thermal unit per second	British thermal unit per second	1.055	kilowatt
Force/Pressure			**Force/Pressure**		
pounds (force) per square inch	6.894757	kilopascals	kilopascals	0.14504	pounds per square inch

06/2001

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Third Ed., 1993, Professional Publications, Inc., Belmont, California.

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3.0 INTEGRATED DISPOSAL FACILITY WASTE ANALYSIS PLAN

Pursuant to WAC 173-303-300(5) this Waste Analysis Plan (WAP) documents the waste acceptance process, sampling methodologies, analytical techniques, and overall processes that will be undertaken for mixed waste accepted for disposal at the IDF. Mixed waste disposed at the IDF will be limited to vitrified LAW from the RPP-WTP and DBVS and mixed waste generated by IDF operations. (see Chapter 1, "Part A Form"). Vitrified LAW generated by RPP-WTP is known as Immobilized Low-Activity Waste (ILAW) and generated by DBVS is known as Bulk Vitrified Waste (BVW). The IDF will be located in the 200 East Area of the Hanford Facility.

The IDF also will receive low-level waste for disposal. Mixed waste will not be placed in the low-level waste portion of the IDF. The requirements of this WAP are applicable to mixed waste and are not applicable to the low-level radioactive waste. The term "treatment, storage, and/or disposal (TSD) unit" is used throughout this WAP to refer to the IDF. Activities will be performed by the IDF operating organization, waste acceptance organization, or its delegated representative.

Although the treatment and disposal of radioactive waste (i.e., source, special nuclear, and by-product materials as defined by the *Atomic Energy Act of 1954*) are not within the scope of *Resource Conservation and Recovery Act* (RCRA) *of 1976* or WAC 173-303, information is provided for general knowledge.

3.1 Description of Unit Processes and Activities

The IDF will be a single, expandable disposal facility constructed to RCRA Subtitle C standards, half of which is for disposal of mixed waste the other half will be for disposal of low-level waste. Initial capacity for mixed waste disposal is 82,000 cubic meters of waste with an ultimate capacity of up to 450,000 cubic meters of waste. Disposal capacity beyond the initial 82,000 cubic meters will require a modification to the Part B Permit. The mixed waste types to be disposed in the IDF include vitrified LAW from the RPP-WTP and DBVS. Additionally, mixed waste generated by IDF operations will be disposed of in IDF.

The mission of the RCRA portion of the IDF is to provide an approved disposal facility for the permanent, environmentally safe disposition of mixed waste and RCRA waste.

For ILAW, and BVW the container packaging and handling will be designed to maintain containment of each waste type, limit intrusion, and limit human exposure at the IDF. ILAW containers will be transported from the RPP-WTP to the IDF using a tractor-trailer system. BVW will be transported from the DBVS staging area to IDF using a similar system. Transport of the ILAW and BVW to the landfill will occur along a pre-determined route.

The lined landfill will have a leachate collection and removal system. ~~The leachate collection tanks will be operated in accordance with the generator provisions of WAC 173-303-200 and are not subject to this WAP.~~The Leachate Collection System (process code: X99, miscellaneous) is used for storing the leachate generated by the IDF disposal cells. The leachate collection system consists of two leachate collection miscellaneous units and ancillary equipment. This system is located at ground surface level, north of the IDF disposal cells 1 and 2.

Additional information is located in Chapter 1.0 (IDF Part A) and Chapter 4.0 ("Process Information").

3.2 Identification and Classification of Waste

The ILAW, BVW, and newly generated mixed waste will be accepted for disposal. The mixed waste disposed of at the IDF is received from waste generated within IDF, and two other Hanford Facility TSD units (RPP-WTP and DBVS). The following waste will not be accepted for disposal at this TSD unit:

- Waste is not accepted for disposal when the waste contains free-standing liquid unless all free-standing liquid:
  - Has been removed by decanting or other methods.
  - Has been mixed with sorbent or stabilized (solidified) so that free-standing liquid is no longer observed.
  - Otherwise has been eliminated.
  - Container is very small, such as an ampoule.
  - Container is a labpack and is disposed in accordance with WAC 173-303-161 or 40 Code of Federal Regulations (CFR) 264.316.
  - Container is designed to hold free liquids for use other than storage, such as a battery or capacitor.

  There could be cases in which small amounts of residual liquids are present in mixed waste containers because condensate has formed following packaging or free liquids remain in debris items (e.g., pumps, tubing) even after draining. When it is not practical to remove this residual liquid, the free liquid must be eliminated to the extent possible by adding a quantity of sorbent sufficient to sorb all residual liquids.

  Free liquid is determined by SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Method*, Method 9095 (Paint Filter Liquids Test) [WAC 173-303-140(4)(b) and 40 CFR 264.314(d)] only for waste that has the potential for free liquid formation.

- Gaseous waste not accepted for disposal if the is waste packaged at a pressure in excess of 1.5 atmospheres at 20°C.
- Pyrophoric waste is not accepted for disposal. Waste containing less than 1 weight percent pyrophoric material partially or completely dispersed in each package is not considered pyrophoric for the purposes of this requirement.
- Solid acid waste is not accepted for disposal [WAC 173-303-140(4)(c)].
- Extremely hazardous waste that does not meet WAC 173-303-140(4)(d) is not accepted for disposal. Extremely hazardous waste that has been treated could be disposed in accordance with Revised Code of Washington (RCW) 70.105.050(2), *Hazardous Waste Management*.
- Organic/carbonaceous waste that does not meet WAC 173-303-140(4)(d) is not accepted for disposal.
- Waste not meeting the land disposal restriction (LDR) treatment standards is not accepted for disposal [40 CFR 268 and WAC 173-303-140(4)].
- Waste streams will be evaluated during pre-shipment review to ensure that the waste streams do not contain constituents incompatible with the liner system in concentration sufficient to degrade the liner. Table 3-1 provides a list of chemicals shown to be incompatible with the liner material at 100% concentrations (WHC-SD-WM-TI-714). In general, mixed waste that meets federal and state treatment standards would be compatible with the TSD unit liner system. Waste accepted at the IDF will be compatible with the liner. Constituents in Table 3-1 will not be accepted for disposal (refer to Section 3.4.9 for waste stream compatibility).

3.3 Management of Waste

The ILAW, BVW, and newly generated wastes (see Section 3.3.1) generated during normal operations of this TSD unit are accepted at this TSD unit for disposal. The two on-site TSD units (RPP-WTP and DBVS) transferring/shipping waste to this TSD unit hereafter are referred to as the "generator" unless otherwise denoted in this WAP. The waste acceptance process for transfers from the generator is identified in Figure 3-1.

Written waste tracking procedure(s) are implemented to ensure waste received at the TSD unit matches the manifest or transfer papers, to ensure that the waste is tracked though the TSD unit to final disposition, and to maintain the information required in WAC 173-303-380. The waste tracking process provides a mechanism to track waste through a uniquely identified container. The unique identifier is a barcode (or equivalent) that is recorded in the Solid Waste Information Tracking System (SWITS). This mechanism encompasses the waste acceptance process, the movement of waste, the processing of waste, and management of the waste.

The container identification number provides traceability between the TSD unit and the hard copy of records that are maintained as part of the operating record to ensure information relative to the location, quantity, and physical and chemical characteristics of the waste are available.

The following sections describe the process for waste acceptance and the different types of information and knowledge reviewed/required during the acceptance process. The process for management of waste is described in Section 3.4.

3.3.1 Newly Generated Waste within the Integrated Disposal Facility

This TSD unit generates mixed waste as a result of operational (e.g., chemical, radiological) activities. These activities include, transfer functions along with inspection, decontamination, cleanup, maintenance tasks and leachate collection. The IDF generated operational waste will be maintained in accordance with generator provisions of WAC 173-303-200 and WAC 173-303-600(3)(d). ~~Any newly generated waste (except leachate) not meeting IDF waste acceptance criteria will be designated and sent to another permitted TSD or to a 90 day accumulation area.~~ IDF leachate will be stored in the Leachate Collection System ~~managed in accordance with WAC 173-303-200 and~~ until transfer~~red~~ to the Liquid Effluent Retention Facility/Effluent Treatment Facility (LERF/ETF) (or other permitted TSD) for treatment. Sampling and analysis is performed to ensure the leachate meets the acceptance criteria of the receiving facility and to meet RCRA monitoring requirements. Leachate sampling and analysis is addressed in Appendix C7, "Leachate Monitoring Plan." Solids or residuals resulting from IDF leachate treatment may be designated/packaged and sent back to the IDF for burial or to another permitted TSD.

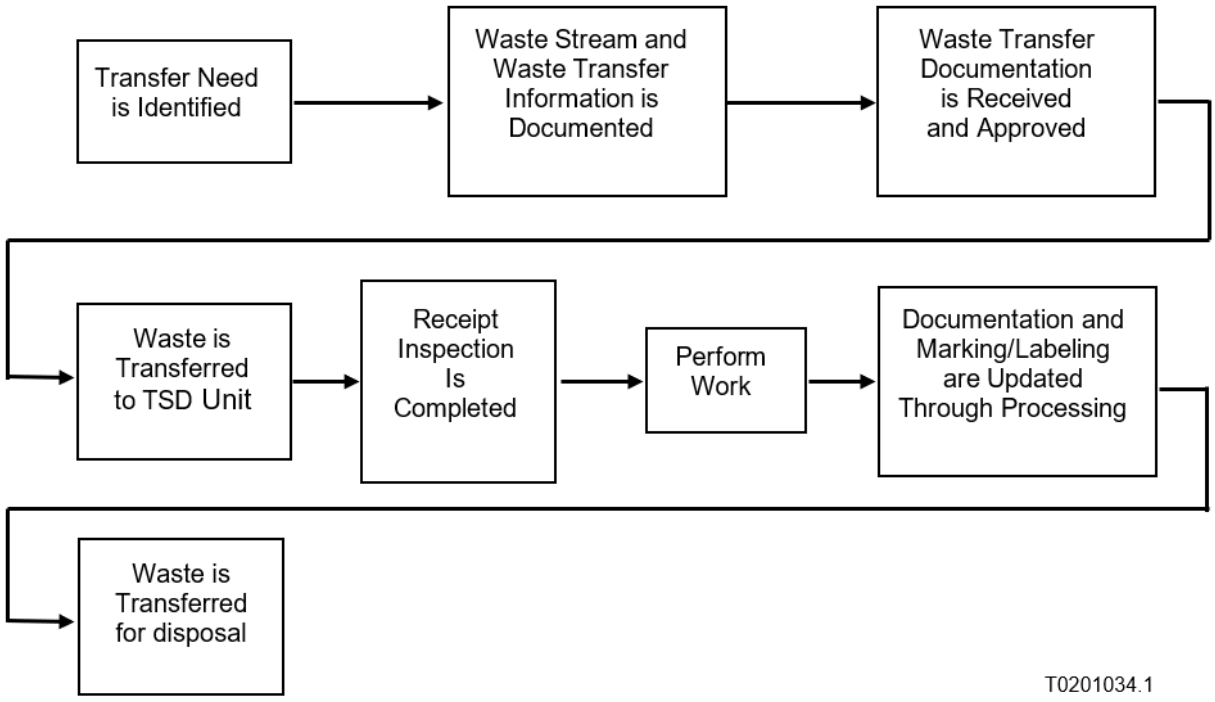


Figure 3-1 Waste Transfers and Analysis Plan On-site Treatment, Storage, and/or Disposal Units Flow Diagram

Table 3-1 Chemicals Incompatible With the High Density Polyethylene Liner (In Concentrated Form)*

Chemical	CAS Number
Amyl chloride	543-59-9
Aqua regia	8007-56-5
Bromic acid	15541-45-4
Bromobenzene	108-86-1
Bromoform	75-25-2
Calcium bisulfite	13780-03-5
Calcium sulfide	20548-54-3
Diethyl benzene	25340-17-4
Diethyl ether	60-29-7
Bromine	7726-95-6
Chlorine	7782-50-5
Fluorine	7782-41-4
Ethyl chloride	75-00-3
Ethylene trichloride	79-01-6
Nitrobenzene	98-95-3
Perchlorobenzene	118-74-1

Table 3-1 Chemicals Incompatible With the High Density Polyethylene Liner (In Concentrated Form)*

Chemical	CAS Number
Propylene dichloride	78-87-5
Sulfur trioxide	7446-11-9
Sulfuric acid (fuming)	8014-95-7
Thionyl chloride	7719-09-7
Vinylidene chloride	75-35-4

CAS = Chemical Abstract Service.

*WHC-SD-WM-TI-714

3.4 Confirmation Process

WAC 173-303-300(1) requires confirmation on mixed waste before acceptance of waste into a waste management unit. The confirmation process consists of two parts, pre-shipment review, and verification. Confirmation activities are performed in accordance with TSD unit-specific governing documentation. The confirmation process is detailed in Figure 3-2 for ILAW and BVW.

IDF-generated wastes are exempt from waste confirmation and receipt activities as the waste is generated by known processes within the perimeter of IDF. IDF-generated wastes are considered accepted at IDF upon generation.

3.4.1 Pre-Shipment Review

Pre-shipment review takes place before waste can be scheduled for transfer or shipment to this TSD unit. The review focuses on whether the waste stream is defined accurately and meets the TSD unit waste acceptance criteria and whether the LDR status is determined correctly. Only waste determined to be acceptable for storage (see Section 3.4.1.2.2) and/or disposal is scheduled. This determination is based on the information provided by the generator. The pre-shipment review consists of waste stream approval and the waste shipment approval process. The following sections discuss the pre-shipment review process. The information obtained during the pre-shipment review, at a minimum, includes all information necessary to safely dispose of the waste. The pre-shipment review ensures the waste is characterized and the data provided qualify as 'acceptable knowledge' (Section 3.4.1.4).

3.4.1.1 Pre-Shipment Review of Wastes

Pre-shipment review for ILAW and BVW waste containers will take place at RPP-WTP and the DBVS staging area respectively before either type of containers can be scheduled for transfer to the IDF. The review will focus on whether the waste stream is defined accurately, meets the waste acceptance criteria, and the land disposal restrictions (LDR) status was determined correctly. Only waste determined to be acceptable for storage (see Section 3.4.1.2.2) and/or disposal will be scheduled. This determination will be based on the information provided by the generator. The pre-transfer review will consist of the waste profile documentation and waste transfer approval process. The following sections discuss the pre-transfer review process. ILAW and BVW containers received for land disposal will be at least 90% full. The information obtained from the generator, at a minimum, will contain five elements:

1. Documentation to ensure waste can be managed pursuant to the Part A, Form 3.
2. Documentation to ensure the waste is not a prohibited waste in accordance with Section 3.2.
3. A determination if the waste is an ignitable, reactive, or incompatible waste as defined in WAC 173-303-040.

4. Documentation that waste meets LDR requirements of 40 CFR 268 and WAC 173-303-140.
5. Operational restrictions on acceptance of waste.

During the waste profile documentation process for ILAW and BVW containers, the generator will have the responsibility to provide relevant information pertaining to the proper management of the waste. Characterization information pertaining to the treatment of ILAW and BVW will be obtained during the waste profile documentation process.

3.4.1.2 Waste Stream Approval Process for Wastes

The waste stream approval process consists of reviewing stream information supplied on a waste stream profile and supporting documentation to allow receipt of the waste into the IDF. Waste stream compatibility (i.e., compatibility between individual waste streams and compatibility between waste streams and landfill design and construction parameters) will be assessed on a case-by-case basis. Criteria for assessing and determining compatibility will be identified in either the facility Waste Acceptance Criteria, Waste Analysis Plan, or other protocol or procedure as appropriate.

3.4.1.2.1 Waste Stream Approval for Immobilized Low-Activity Waste and Bulk Vitrification Waste

During the waste profile documentation process, the IDF waste acceptance organization will obtain the following information:

- Description of waste generating process.
- Characterization data.
- Dangerous waste numbers.
- LDR data (as specified in Section 3.4.10).
- Composition of ILAW and BVW including regulated constituents of concern (refer to Chapter 1.0 of the permit application - Part A Form).

The waste profile documentation process will be as follows.

1. Appropriate generator fills out waste profile documentation.
2. The IDF designated waste acceptance organization reviews the waste profile information against the waste acceptance criteria for each ILAW or BVW transfer.
3. If discrepancies are noted, the IDF designated waste acceptance organization requests additional information from the generator to address discrepancies for either: (1) inconsistent information and (2) information not constituting acceptable knowledge (refer to Section 3.4.1.4.1).

Information (waste profile documentation) is resubmitted by the generator addressing concerns in Item 3.

- If concerns are addressed, waste profile documentation is approved.
- If concerns are not addressed and met, waste profile documentation is not approved until concerns are corrected.

3.4.1.2.2 Waste Stream Approval for Newly Generated Mixed Waste

The waste stream approval process for wastes generated during IDF operations ~~(except for leachate)~~ consists of reviewing stream information supplied on a waste stream profile and supporting documentation. The waste stream profile requires the following supporting documentation:

- Generator information (e.g., name, address, point-of-contact, telephone number).
- Waste stream name.
- Waste generating process description.

- Waste numbers.
- Chemical characterization information (e.g., characterization method(s), chemicals present, concentration ranges).
- Designation information.
- LDR information including identification of underlying hazardous constituents if applicable.
- Waste type information (e.g., physical state, adsorbents used, inert materials, stabilizing agents used).
- Packaging information (e.g., container type, maximum weight, size).

Attachments could consist of container drawings, process flow information, analytical data, etc.

In some cases, such as variable waste streams, the waste stream profile information could be general in nature. In these cases, more detailed information is gathered during the waste shipment approval process on a per shipment basis. This information is reviewed against the TSD unit waste acceptance criteria to ensure the waste is acceptable for receipt. If conformance issues are found during this review, additional information is requested that could include analytical data or a sample to be analyzed.

If the waste cannot be received, the TSD unit pursues acceptance of the waste at an alternate TSD unit. Once the waste meets the waste acceptance criteria, the TSD unit assigns the profile to a waste specification record and establishes a waste verification frequency based on the requirements found in Section 3.4.2. Profile information is re-evaluated as discussed in Section 3.4.7.

3.4.1.3 Waste Transfer/Shipment Approval Process

After the appropriate generator has received the waste profile documentation approval from IDF (refer to Section 3.4.1.2.1), the generator waste transfer will be subjected to the waste transfer approval process. Only those ILAW and BVW containers approved under the waste profile documentation as part of the waste transfer approval process will be transferred to the IDF. During the waste transfer approval process, the IDF designated waste acceptance organization will obtain the following information.

For each ILAW or BVW container transfer that is a candidate for disposal in the TSD unit, the generator will provide the following information:

- Container identification number.
- Profile number.
- Waste description.
- Generator information (e.g., name, address, point-of-contact, telephone number).
- Container information (e.g., type, size, weight).
- Waste numbers.
- LDR certification.
- Packaging materials and quantities.

The ILAW and BVW container transfer approval process will be as follows.

1. The generator obtains information from existing database, operating record, or generator records on each ILAW container to be transferred under the approved waste profile documentation.
2. Information is submitted to the TSD unit designated waste acceptance organization by the generator and is reviewed for the following:
   - Consistency with approved waste profile documentation.
   - Consistency with waste acceptance criteria within the IDF.

3. If discrepancies are identified, the TSD unit designated waste acceptance organization will request additional information from the generator to address any discrepancies.
4. Information (waste package documentation) is resubmitted by the generator addressing concerns in Item 3.
5. If discrepancies are addressed, this information is forwarded to the TSD waste acceptance organization.
6. If discrepancies are not addressed, transfer is not approved until discrepancies are corrected.

3.4.1.4 Acceptable Knowledge Requirements

The TSD unit ensures that all information used to make waste management decisions is based on adequate characterization data as described in the following sections. The TSD unit evaluates the data to ensure that the data are adequate acceptable knowledge for management of the waste.

3.4.1.4.1 General Acceptable Knowledge Requirements

One or more of the following types of information could be considered, provided that the information is of sufficient quality to demonstrate compliance with applicable waste acceptance criteria:

- Mass balance from a controlled process that has a specified output for a specified input.
- Material safety data sheet on chemical products.
- Test data from a surrogate sample.
- Analytical data on the waste or a waste from a similar process.

In addition, acceptable knowledge requirements can be met using a combination of analytical data or screening results and one and/or more of the following information:

- Interview information.
- Logbooks.
- Procurement records.
- Qualified analytical data.
- Radiation work package.
- Procedures and/or methods.
- Process flow charts.
- Inventory sheets.
- Vendor information.
- Mass balance from an uncontrolled process (e.g., spill cleanup).
- Mass balance from a process with variable inputs and outputs (e.g., washing/cleaning methods).

If the information is sufficient to quantify the constituents of regulatory concern and to determine waste characteristics as required by the regulations and TSD unit waste acceptance criteria, the information is considered acceptable. Adequate acceptable knowledge includes (1) general waste knowledge requirements and/or (2) LDR waste knowledge requirements.

(1) General waste knowledge requirements. At a minimum, the generator supplies enough information for the waste to be managed at this TSD unit (refer to Section 3.4.1.1). The minimum level of acceptable knowledge consists of designation data where the constituents causing a waste number to be assigned are quantified and that data address any TSD unit operational parameters necessary for proper management of the waste.

When process knowledge indicates that constituents, which if present in the waste might cause the waste to be regulated, are input to a process, but not expected to be in the waste, sampling and analysis must be performed to ensure the constituents do not appear in the waste above applicable regulatory levels. This requirement can be met through chemical screening. This sampling and analysis are required only for initial characterization of the waste stream.

When the available information does not qualify as acceptable knowledge or is not sufficient to characterize a waste for management, the sampling and testing methods outlined in WAC 173-303-110 are used to determine whether a waste designates as ignitable, corrosive, reactive, and/or toxic and whether the waste contains free liquids as applicable. If the analysis is performed to complete characterization after acceptance of the waste by the TSD unit, this WAP governs the sampling and testing requirements.

(2) LDR waste knowledge. The TSD unit operating record contains all information required to document that the appropriate treatment standards have been met or will be met after the waste is treated unless otherwise excepted in this section.

- Both ILAW and BVW will be LDR compliant waste streams prior to acceptance at the IDF. Vitrification at the WTP and DBVS will facilitate LDR compliance for the majority of the mixed waste disposed of at IDF. IDF operational waste will be treated as needed to meet LDR at another TSD other than WTP or the DBVS.
- This TSD unit may use analytical data as necessary to ensure that the applicable requirements found in 40 CFR 268.7 and WAC 173-303-140(4) are met.

3.4.1.4.2 Methodology to Ensure Compliance with Land Disposal Restriction Requirements

The generators are subject to LDR requirements and are required to submit all information notifications and certifications described in WAC 173-303-380(1), (j), (k), (n), and (o). Mixed waste not meeting the treatment standards cannot be disposed at this TSD unit.

The following are general requirements for certification or information notification.

- The waste is subject to LDR and the waste has been treated. The generator supplies the appropriate LDR certification information (40 CFR 268).
- The waste is subject to LDR and the generator has determined that the waste meets the LDR as generated. The generator develops the certification based on process knowledge and/or analytical data and supplies the appropriate LDR certification information necessary to demonstrate compliance with the LDR treatment standards of 40 CFR 268 and WAC 173-303-140. State-only LDRs do not require this type of certification.

When demonstrating that a concentration-based LDR treatment standard has been met, a representative sample of the waste must be submitted for analysis. This sample could be taken by the treatment facility or the generator and is required to comply with the LDR treatment standards contained in 40 CFR 268.40 and 268.48 for underlining hazardous constituents.

3.4.2 Verification

Verification is an assessment performed by this TSD unit to substantiate that the waste received is the same as represented by the analysis supplied by the generator for the pre-shipment review. Verification for ILAW and BVW containers will contain one element, a 100% container receipt inspection. Physical/chemical screening will not be performed on the ILAW or BVW containers. Waste is not accepted by the TSD unit for disposal until the required elements of verification have been completed, including evaluation of any data obtained from verification activities. All conformance issues identified during the verification process are resolved in accordance with Section 3.4.3. Verification activity results will be documented by the IDF designated waste acceptance organization.

Sampling and analysis for non-vitrification mixed waste (e.g., treatment residues from treatment of IDF leachate that are returned to IDF for disposal) will not occur at the IDF but will occur at another permitted TSD.

3.4.2.1 Container Receipt Inspection

Container receipt inspection is a mandatory element of the confirmation process.

3.4.2.1.1 Container Receipt Inspection for Immobilized Low-Activity Waste and Bulk Vitrification Waste

The ILAW and BVW container receipt inspection will be performed by IDF designated waste acceptance organization. The following criteria will be evaluated during container receipt inspection:

- Number of containers.
- Size of containers.
- Labels.
- Container integrity.

Discrepancies identified during the container receipt inspection will be communicated to generator. Discrepancies will be resolved before the containers are unloaded. Once the discrepancies are resolved, the ILAW containers will be unloaded and disposed. Should discrepancies remain unresolved after 30 days, Washington State Department of Ecology (Ecology) will be notified and daily walk around inspections conducted.

3.4.2.2 Physical Screening Process

The ILAW and BVW containers are not required to be physically screened because the generator verifies the waste meet the waste acceptance criteria for IDF.

3.4.2.3 Chemical Screening Process

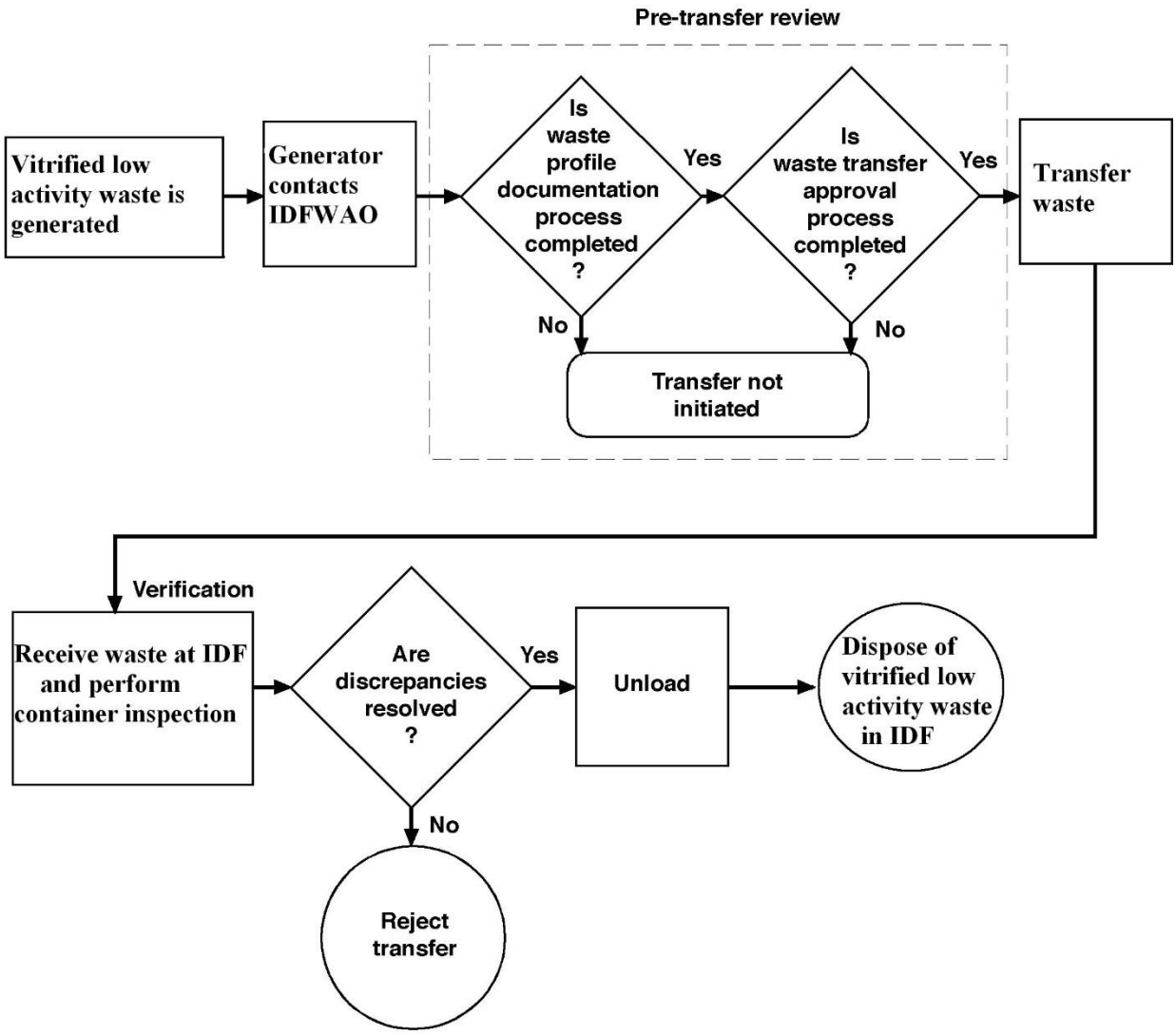
Chemical screening is a verification element for containerized mixed waste. The ILAW and BVW containers are not required to be chemically screened because the generator verifies the waste meet the waste acceptance criteria for IDF.

3.4.3 Waste Acceptance

Initial acceptance of waste occurs only after the confirmation process described in Section 3.4 is complete. Conformance issues identified during the confirmation process are documented and managed in accordance with Section 3.4.1.2.2. Conformance issues that must be corrected before waste acceptance include the following:

- Waste that is not identified in the Part A, Form 3 (Chapter 1.0).
- Waste does not match approved profile documentation.
- Designation, physical, and/or chemical characterization discrepancy.
- Incorrect LDR paperwork.
- Packaging discrepancy.
- Manifest discrepancies as described in WAC 173-303-370(4).

For waste shipments with unresolved conformance issue(s) that exceed 90 days, this TSD will notify Ecology at least once per calendar quarter.



IDF = Integrated Disposal Facility
IDFWAO = IDF Waste Acceptance Organization

Figure 3-2 Vitrification or Alternative Method Transfer and Waste Analysis Plan Process Flow Diagram

3.4.4 Selecting Waste Analysis Parameters

The ILAW and BVW containers will be managed without the need to perform sampling and analysis at the TSD. No parameters will be required to be identified.

Table 3-2 Parameters and Rationale for Physical Screening

Parameter	Method*	Rationale for Selection
Nondestructive examination	Field method	Confirm consistency between waste and shipping documentation.

*Procedures based on manufacturer's recommended methodology unless otherwise noted. When regulations require a specific method, the method is followed.

SW-846, *Test Methods for Evaluating Solid Waste*, latest edition, U.S. Environmental Protection Agency, Washington, D.C.

WAC 173-303, *Dangerous Waste Regulations.*

3.4.5 Selecting Sampling Procedures

Any required sampling and analysis of the ILAW and BVW containers will be performed at the generator before the containers are closed. Sampling and analysis for IDF operational mixed waste will not occur at the IDF but at another Hanford TSD.

3.4.6 Selecting a Laboratory, Laboratory Testing, and Analytical Methods

Any required sampling and analysis of the ILAW and BVW containers will be performed before the containers are closed at the RPP-WTP and DBVS respectively. No laboratory, laboratory testing or analytical methods will be required to be identified.

3.4.7 Selecting Waste Re-Evaluation Frequencies

The re-evaluation (repeat and review) frequency for ILAW to review a waste generating process and associated waste profile documentation is every two years, or more often if conditions in WAC 173-303-300(4)(a) arise. Since BVW will be generated over a shorter time period, frequency for review will be every six months.

When a waste generating process and associated waste profile documentation is re-evaluated, IDF personnel or designated waste acceptance organization could request the generator to do one or more of the following:

- Verify the current waste profile documentation is accurate.
- Supply new waste profile documentation.

When a waste profile is re-evaluated, the TSD unit could request the organization generating the waste to do one of the following:

- Verify the current waste profile is accurate.
- Supply a new waste profile.
- Submit a sample for parameter analysis.

3.4.8 Special Waste Analysis Procedural Requirements

Special procedural requirements for the IDF will include procedures for ignitable, reactive, and incompatible waste, and provisions for complying with federal and state LDR requirements. This section discusses any special process requirements for receiving mixed waste at this TSD unit.

3.4.9 Procedures for Ignitable, Reactive, and Incompatible Waste

Waste stream compatibility (i.e., compatibility between individual waste streams and compatibility between waste streams and landfill design and construction parameters) and waste stream ignitability will be assessed on a case-by-case basis. Criteria for assessing and determining compatibility and ignitability will be identified in either the facility Waste Acceptance Criteria, Waste Analysis Plan, or other protocol or procedure as appropriate. Should these wastes be accepted, appropriate administrative and engineering controls will be implemented as necessary.

This TSD unit does not accept reactive waste (refer to Section 3.2 and Section 3.4.1.1). The TSD unit ensures that reactive waste is not accepted at this TSD unit in the following manner.

- Pre-shipment review will identify whether the waste is reactive based on the definition contained in WAC 173-303-040.
- If analysis of the characterization information leads to a conclusion that the waste is a reactive waste, the containers, or waste will not be accepted.

The types of prohibited waste not accepted at this TSD unit as listed in Section 3.2.

3.4.10 Provisions for Complying With Federal and State Land Disposal Restriction Requirements

State-only and federal LDR requirements restrict the land disposal of certain types of waste subject to RCRA and RCW 70.105, *Hazardous Waste Management*, as amended. Waste managed on the Hanford Facility falls within the purview of these LDRs per 40 CFR 268 and WAC 173-303-140. The treatment standards for mixed waste disposed at IDF are based on the dangerous waste numbers accepted as documented on the IDF Part A as well as additional information necessary for identifying treatability groups etc.

The IDF will not perform sampling and analysis to determine compliance with treatment standards contained in 40 CFR 268. Any sampling and analysis results required to demonstrate compliance with concentration-based treatment standards contained in 40 CFR 268.40 will be obtained by IDF waste acceptance organization from the generator, during the waste profile documentation process to meet the requirements of 40 CFR 268.7(c)(2). Sampling and analysis results will be placed into the unit-specific portion of the Hanford Facility operating record. Other LDR records are identified in WAC 173-303-380(1)(m) and will be obtained from the generator, by IDF personnel as part of either the waste profile documentation process or the waste transfer approval process. The treated waste must meet all applicable LDRs to be accepted for disposal at the IDF. IDF will obtain the LDR certification from the treatment unit.

Mixed waste constituents that are subject to LDRs are identified in 40 CFR 268.40 by reference in WAC 173-303-140(2), the extremely hazardous waste disposal requirements for U.S. Department of Energy (DOE) facilities contained in RCW 70.105.050(2), and the state-only LDRs contained in WAC 173-303-140(4)(b)-(d). The mixed waste must meet certain treatment standards, as specified in 40 CFR 268.40, RCW 70.105.050(2), and WAC 173-303-140(4)(b)-(d), if the waste is to be land disposed. Any waste requiring LDR treatment must be treated prior to acceptance into the IDF.

State-only LDRs for mixed waste will be met in the following manner:

- Extremely hazardous waste disposal requirements in RCW 70.105.050(2) concerning "all reasonable methods" will be met by the treatment performed to meet 40 CFR 268, WAC 173-303-140(4)(b)-(d), and DOE requirements for disposal. If no treatment is required to meet 40 CFR 268, WAC 173-303-140(4)(b)-(d), or DOE requirements, no treatment is required to dispose of extremely hazardous waste at the IDF.

- Special requirements for bulk and containerized liquids in WAC 173-303-140(4)(b) are identical to the landfill requirements contained in 40 CFR 264.314. For mixed waste, including the provisions when to perform the paint filter test, these requirements are described in Section 3.2 of the WAP.
- Solid acid waste requirements in WAC 173-303-140(4)(c) can be met through knowledge of the treatment process. Sampling and analysis following treatment is not required to meet this state-only LDR. Disposal of treated solid acid waste still displaying the WSC2 characteristic can occur only when the waste is treated to reduce the harmful properties or characteristics of the waste.
- Organic/Carbonaceous waste prohibition requirements in WAC 173-303-140(4)(d) do not apply to the Hanford Facility because the Hanford Facility is operating under WAC 173-303-140(4)(d)(iii), in accordance with a site-wide 1,609 kilometers (1,000-mile) inapplicability certification. Sampling and analysis is not required to determine the organic/carbonaceous content of a mixed waste.
- Ecology allows treatment of Organic/Carbonaceous waste in lieu of meeting the inapplicability certification requirements WAC-173-303-140(4)(d)(iii) through macro-encapsulation for hazardous debris only.

3.4.11 Off-Specification Waste

Off-Specification ILAW or BVW is waste not meeting the waste acceptance criteria as described in Section 3.4, Confirmation Process. ILAW or BVW streams determined to be off-specification may be temporarily stored in the RCRA lined portion of the IDF pending resolution of discrepancy or return to generating TSD as long as these wastes meet LDR. ILAW and BVW may be temporarily stored in the RCRA lined portion of the IDF, provided the temperature administrative control limit is not exceeded, until sufficiently cool for disposal.

3.5 Waste Tracking

The IDF will monitor and record the placement of waste packages. At the time of final placement of each package, the position and serial number of the package will be logged.

3.6 Recordkeeping

Recordkeeping requirements that will be applicable to this WAP are as follows:

- Confirmation records described in Section 3.4 will be maintained in accordance with Condition II.I.1.b of the Hanford Facility RCRA Permit, Dangerous Waste Portion (Ecology 2001).
- Waste profile documentation described in Section 3.4.1.2.1 will be maintained in accordance with Condition II.I.1.j of the Hanford Facility RCRA Permit, Dangerous Waste Portion.
- LDR records described in Section 3.4.10 will be maintained in accordance with WAC 173-303-380(1)(m) in the IDF unit-specific portion of the Hanford Facility operating record.

3.7 References

Ecology, 2001, Hanford Facility RCRA Permit, Dangerous Waste Portion, Washington State Department of Ecology, Olympia, Washington as amended.

SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Method*, latest edition, Office of Solid Waste, U.S. Environmental Protection Agency, Washington, D.C.

WHC-SD-WM-TI-714, *High-Density Polyethylene Liner Chemical Compatibility for Radioactive Mixed Waste Trenches*, 1995, Westinghouse Hanford Company, Richland, Washington.